National Institute of Environmental Health Sciences

The effects of bushfire smoke on respiratory health

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Abstract:

Bushfire smoke has the potential to affect millions of people and is therefore a major public health problem. The air pollutant that increases most significantly as a result of bushfire smoke is particulate matter (PM). During bushfire smoke episodes, PM concentrations are usually much higher than urban background concentrations, at which effects on respiratory health have been observed. The smoke can cover large areas including major cities and even small increases in the risk of respiratory health effects can cause large public health problems. The association between respiratory morbidity and exposure to bushfire smoke is consistent with the associations found with urban air pollution. Although using different methods, all studies looking at Emergency Department presentations in relation to a bushfire smoke event have found associations and most studies have also found an association with hospital admissions. However, only a few studies have distinguished between the effects of bushfire PM(10) (particles with a median aerodynamic diameter less than 10 microm) and background PM(10). These studies suggest that PM(10) from bushfire smoke is at least as toxic as urban PM(10), but more research is needed.

Source: http://dx.doi.org/10.1111/j.1440-1843.2010.01868.x

Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Air Pollution, Extreme Weather Event

Air Pollution: Particulate Matter

Extreme Weather Event: Wildfires

Geographic Feature:

resource focuses on specific type of geography

None or Unspecified

Geographic Location:

resource focuses on specific location

Non-United States, United States

Non-United States: Asia, Australasia, Europe, Non-U.S. North America

Asian Region/Country: Other Asian Country

Other Asian Country: Malaysia

European Region/Country: European Region

Other European Region: European Union

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Respiratory Effect

Respiratory Effect: Asthma, Bronchitis/Pneumonia, Chronic Obstructive Pulmonary Disease, Upper Respiratory Allergy, Other Respiratory Effect

Respiratory Condition (other) : respiratory hospital admissions

Population of Concern: A focus of content

Population of Concern: ☑

populations at particular risk or vulnerability to climate change impacts

Children, Elderly, Racial/Ethnic Subgroup

Other Racial/Ethnic Subgroup: Australian Indigenous population

Resource Type: ☑

format or standard characteristic of resource

Review

Timescale: ☑

time period studied

Time Scale Unspecified